Broadway Junior School

Subject: Computing Topic: Route Planners Year: 3 Term: Summer 2

NC Purpose of Study
A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Intent	Implementation	Impact
Our vision at Broadway Junior School is that all pupils should enjoy Computing and become confident, passionate and responsible users of technology both inside and outside of school. Through interesting, relevant and inclusive lessons, they will be able to leave Year 6 with a good understanding of how computers and the Internet work, along with being able to complete tasks on them creatively, independently and reflectively for a range of purposes and audiences. The Computing curriculum at Broadway is designed to enable pupils to embrace and utilise new technologies through the application of essential knowledge, principles and concepts. Technology is everywhere and will play a pivotal part in students' lives, therefore, we want to model and educate our pupils on how to use technology positively, responsibly and safely. We want our pupils to be creators, not just consumers of content and our broad curriculum encompassing 'Coding & Computational Thinking', 'Information Technology', 'Computing Systems & Networks' and 'Online Safety' reflects this. We recognise that the best prevention for a lot of issues we currently see with technology and social media is through education.	Computing skills are taught explicitly at Broadway with every pupil receiving dedicated Computing lessons throughout each half-term. Each half-term has a focus on either Information Technology, Coding & Computational Thinking or Computing Systems & Networks with Online Safety lessons also included throughout each half-term. The skills acquired are then embedded throughout the curriculum. Learning is sequenced to build knowledge, skills and vocabulary. Throughout units of work teachers encourage children to make links between past learning and new content. We recognise prior learning and build on it with memorable learning experiences and provide targeted support where necessary. The units address the requirements of the National Curriculum and are broken down to cover all elements of the different strands of Computing. The progression of knowledge and skills statements build year on year to deepen and challenge our learners. We use Purple Mash as the core of our curriculum tied with Teach Computing and activities from Project Evolve to create a comprehensive curriculum providing full curriculum coverage and a variety of skills for our children.	The impact of our Computing curriculum is that we provide pupils with a set of skills to embed a lifelong love of learning and that they build on the knowledge and skills from previous learning. We ensure that every child can become a confident user of technology, while being able to use it to accomplish a wide variety of goals, both at home and in school. Children will have a secure and comprehensive knowledge of how technology works in the world around them and will develop their understanding of how to deal with online situations safely. Children will become confident global citizens. The knowledge organisers outline what we want the children to know within each unit. By nature, Computing is going to be practical and hands on. We give the children the opportunity to record individually their responses to key questions. Teachers ensure that children understand and apply the correct vocabulary linked to different elements of the curriculum and this is also recorded within the floor books. Prior and future learning links are also included, so that there is a clear sequence in relation to the progression of skills and activities.

Key Vocabulary
Code command algorithm turtle

Knowledge	Skills
• To create simple commands in 2Go to move the turtle along a route. • To create commands in 2Go in which the turtle turns using rotation. • To plan algorithms and write 2Go code that uses angles of turn. • To use 90° and 45° angles in 2Go. • To use the repeat algorithm and coding in 2Go.	• I can combine commands for directions and distance to make a character move along a chosen route. • I can plan algorithms for several steps of a route and code this in 2Go. Preparation • I can work out how to rotate the turtle so that it faces the correct direction. • I can combine turns and distance to code commands for the turtle. • I can plan routes with more than one destination. • I can write programs that include turns of 90° and 45°, debugging these to make my routes accurate. • I can read code that includes 90° and 45° and make sensible predictions about where the turtle will go.

Broadway Junior School

Subject: Computing Topic: Route Planners Year: 3 Term: Summer 2

	• I can write, test and debug my code. • I can use the repeat command to make shapes that have 90° and 45° angles.

	Learning Objectives/End Points			
To create simple commands in 2Go to move the turtle along a route. Lesson 1	To create commands in 2Go in which the turtle turns using rotation. Lesson 2	To plan algorithms and write 2Go code that uses angle of turn. Lesson 3	To use 90° and 45° angles in 2Go. Lesson 4	To use the repeat algorithm and coding in 2Go. Lesson 5

Prior and Future Learning Links:
• Use in Logo/ Coding unit

Careers

Linking Curriculum Learning to Careers
Discuss how the skills developed in this unit are used in a range of careers, including:

Computer Programmer – Creates computer programs and apps.
Game Designer – Designs and develops video games.
Web Developer – Builds and maintains websites.
Graphic Designer – Uses computers to create images, logos, and designs.
Robotics Engineer – Designs and programs robots.
Cybersecurity Specialist – Helps protect computers and networks from hackers.
App Developer – Creates apps for phones and tablets.
Animator – Uses computer software to create animations and visual effects.
Data Scientist – Uses computers to study and understand data.
IT Support Specialist – Helps people solve computer and technology problems.

Transferable skills Logical thinking: Planning algorithms and sequencing instructions.
Problem-solving: Working out routes and selecting accurate angles of turn.
Numeracy: Applying knowledge of 45° and 90° angles and direction.
Planning and organisation: Designing routes before writing code.
Resilience: Testing, debugging and improving programs.
Creativity: Using repeat commands to create shapes and patterns.
Attention to detail: Checking that instructions produce the intended movement.

Learning from career and labour market information
Introduce careers that use coding and logical thinking, such as software developers, game designers, robotics engineers and digital designers.

Addressing the needs of each pupil
Provide accessible coding activities with visual demonstrations, step-by-step instructions and opportunities for additional challenge, enabling all pupils to develop confidence and independence.

Linking curriculum learning to careers
Link planning algorithms, directing the turtle, using 45° and 90° turns, repeating commands and debugging routes to the work of programmers, game developers and robotics engineers.

Encounters with employers and employees
Where possible, invite a parent, school staff member or visitor who uses digital technology in their job to explain how they plan instructions, solve problems or use code.

Experiences of workplaces
Explore how coding is used in workplaces such as game studios, animation companies, robotics laboratories and engineering environments to control movement and create digital experiences.

Encounters with further and higher education
Introduce pupils to opportunities to develop computing skills through school, coding clubs, college, university and technical training in programming, engineering and digital technology.